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Amendments to the Claims

- Sub C1*
1. (Previously amended) A vacuum seal for sealing a pair of opposed metal flanges, the seal comprising an outer metallic annular member having a generally c-shaped longitudinal radial cross-section and an inner metallic annular member having a generally c-shaped longitudinal radial cross-section, wherein the outer metallic annular member has a pair of oppositely-directed longitudinally outward-projecting, ridges for deformably engaging the pair of opposed metal flanges and the inner metallic annular member has longitudinal strength and elasticity effective to maintain the ridges in engagement with the flanges.
2. (Previously amended) The seal of claim 1 wherein the inner metallic annular member provides the primary structural integrity of the seal.
- B1*
3. (Previously amended) The seal of claim 1 wherein the inner metallic annular member has a characteristic thickness of between about 2 and 4 times a characteristic thickness of the outer metallic annular member.
4. (Previously amended) The seal of claim 1 wherein the inner metallic annular member is formed of a nickel-based superalloy and the outer metallic annular member is formed of an aluminum-based material.
5. (Previously amended) The seal of claim 1 wherein the each of the ridges has a longitudinal extent beyond a thickness of the outer member away from the ridges.

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6. (Previously amended) An annular vacuum seal for sealing first and second opposed flanges to maintain an internal pressure less than an external pressure, the seal having nested inner and outer members and having a longitudinal radial section which is characterized by:

the outer member being generally c-shaped and open radially outward; and

the inner member nested within the outer member and being generally c-shaped and open radially outward and having a wall thickness effective to maintain the outer member in engagement with the first and second flanges in the absence of a spring nested within the inner member.

7. (Previously amended) The seal of claim 6 wherein:

the inner member has a full plating of a copper-base material.

8. (Previously amended) The seal of claim 6 wherein:

the inner member is formed of a nickel-base superalloy; and

the outer member is formed of an aluminum-base material.

9. (Previously amended) The seal of claim 6 being effective to provide a leakage rate of no more than about 4×10^{-12} cm³/s-mm.

10. (Previously amended) The seal of claim 6 wherein the inner metallic annular member longitudinal radial cross-section has a central arcuate portion and a pair of distal straight portions extending radially outward from opposite ends of the arcuate portion.

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11. (Previously amended) A method for manufacturing an annular vacuum seal for sealing first and second opposed flanges to maintain an internal pressure less than an external pressure, the seal having nested inner and outer members:

welding ends of a piece of a first metal together to form a first band;

die-forming the first band into a generally c-shaped, open radially outward, cross-section so as to form the inner member having a wall thickness effective to resist compression of the seal between the first and second flanges so as to maintain the outer member in sealed engagement with the first and second flanges to maintain said internal pressure;

inserting a second band of a second metal within the first band;

forming the second band into a c-shaped cross-section around the inner member; and

roll-forming first and second opposed, longitudinally outward projecting, annular ridges in the second band to provide the outer member.

12. (Previously amended) The method of claim 11 wherein:

the inner member is plated prior to insertion of the second band; and

the ridges are flat lapped.

13. (Previously amended) An annular vacuum seal for sealing first and second opposed flanges to maintain an internal pressure less than an external pressure, the seal having nested inner and outer members and having a longitudinal radial section which consists essentially of:

the outer member being generally c-shaped and open radially outward;

the inner member nested within the outer member and being generally c-shaped and open radially outward and having a wall thickness effective to maintain the outer member in

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engagement with the first and second flanges; and

optionally one or more coating or plating layers.

14. (Previously added) The vacuum seal of claim 1 consisting essentially of said outer metallic annular member, said inner metallic annular member, and at least one plating layer.

15. (Previously added) The vacuum seal of claim 6 consisting essentially of said nested inner and outer members and at least one plating layer.

16. (Previously added) The vacuum seal of claim 13 consisting essentially of said nested inner and outer members and at least one plating layer.

17. (Previously added) The vacuum seal of claim 13 wherein the inner member comprises a nickel based superalloy and the outer member comprises an aluminum-based material.

18. (Previously added) The vacuum seal of claim 13 wherein the outer member has a pair of oppositely directed, longitudinally outward-projecting, ridges for deformably engaging the first and second opposed flanges.

19. (Currently Amended) The seal of claim ~~13~~ 18 wherein the outer member is thickest along each of the ridges.

20. (New) A vacuum seal in combination with a pair of opposed metal flanges sealed by the

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seal, the seal comprising:

an outer metallic annular member having a generally c-shaped longitudinal radial cross-section and having a pair of oppositely-directed, longitudinally outward-projecting, ridges deformably engaging the pair of opposed metal flanges, the outer metallic annular member being thickest along the ridges; and

an inner metallic annular member having a generally c-shaped longitudinal radial cross-section and longitudinal strength and elasticity maintaining the ridges in engagement with the flanges.

21. (New) The seal of claim 20 lacking a helical spring.
